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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,285	09/11/2003	Masayoshi Iwase	242506US2 DIV	5572

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EXAMINER

MARTIN, ANGELA J

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 11/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/659,285

Applicant(s)

IWASE, MASAYOSHI

Examiner

Angela J. Martin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-13 and 16-20 is/are pending in the application.
- 4a) Of the above claim(s) 7-13 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-13 and 16-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/741,069.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>9/11/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 7-13 and 20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 10/13/06.

Claim Objections

2. Claims 3-6 and 16-19 objected to because of the following informalities: The preamble recites "A fuel cells system" instead of "A fuel cell system". Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 3 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Lorenz et al., U.S. Pat. No. 5,646,852.

Rejection of claims 3 and 16 drawn to a fuel cell system.

Lorenz et al., teach a fuel cell system, having fuel cells, which receive a supply of a gas and generate electric power (col. 2, lines 3-15), and a secondary battery, which accumulates electric power therein and outputs the accumulated electric power, said

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fuel cell system supplying at least one of the electric power generated by the fuel cells and the electric power output from the secondary battery to a load (col. 2, lines 17-21), said fuel cells system comprising: a gas flow rate-relating quantity measurement unit configured to measure a gas flow rate-relating quantity, which relates to a flow rate of the gas supplied to said fuel cells (col. 1, lines 33-37); and a control unit configured to specify a working point associated with an output electric current-output voltage characteristic of said fuel cells corresponding to the measured gas flow rate-relating quantity, to determine a first amount of electric power to be taken out of said fuel cells (col. 2, lines 46-51), which is required to activate said fuel cells at the specified working point, to determine a second amount of electric power to be supplied to the load, and to regulate at least one of the electric power to be output from the secondary battery and the electric power to be accumulated in said secondary battery, based on the first and second determined amounts of electric power (col. 2, lines 52-55). Lorenz et al., teach a means for specifying a working point associated with an output electric current-output voltage characteristic of said fuel cells corresponding to the measured gas flow rate-relating quantity, for determining a first amount of electric power to be taken out of said fuel cells (col. 2, lines 46-51), which is required to activate said fuel cells at the specified working point, for determining a second amount of electric power to be supplied to the load, and for regulating at least one of the electric power to be output from the secondary battery and the electric power to be accumulated in said secondary battery, based on the first and second determined amounts of electric power (col. 2, lines 52-55).

Thus, the claims are anticipated.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3-6 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lorenz et al., U.S. Pat. No. 5,646,852, in view of Azuma et al., JP 07-240212 (machine translation).

Rejection of claims 3-6 and 16-19 drawn to a fuel cell system.

Lorenz et al., teach a fuel cell system as described above.

Azuma et al., teach a fuel cell system in accordance with claim 3, further comprising: a state of charge sensor configured to measure a state of charge of said secondary battery (abstract), wherein said control unit regulates at least one of the electric power to be output from said secondary battery and the electric power to be accumulated in said secondary battery, based on the measured state of charge in addition to the first and second determined amounts of electric power (0007). A fuel cell system in accordance with claim 3, wherein said control unit specifies a point of highest energy conversion efficiency on the output electric current-output voltage characteristic as the specified working point (0013). A fuel cell system in accordance with claim 4,

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wherein said control unit specifies a point of highest energy conversion efficiency on the output electric current-output voltage characteristic as the specified working point (0019-0020). A fuel cell system in accordance with claim 16, further comprising: means for measuring a state of charge of said secondary battery, wherein said means for specifying regulates at least one of the electric power to be output from said secondary battery and the electric power to be accumulated in said secondary battery, based on the measured state of charge in addition to the first and second determined amounts of electric power (abstract). A fuel cell system in accordance with claim 16, wherein said means for specifying specifies a point of highest energy conversion efficiency on the output electric current-output voltage characteristic as the specified working point (0019-0020). A fuel cells system in accordance with claim 17, wherein said means for specifying specifies a point of highest energy conversion efficiency on the output electric current-output voltage characteristic as the specified working point (0019-0020).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to insert the teachings of Azuma et al., into the teachings of Lorenz et al., because the state of charge sensor would provide "improve the fuel consumption efficiency by properly selecting the output of a fuel cell to charge a secondary battery based on the charged state of the secondary battery" (Azuma et al.).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bonnefoy, U.S. Pat. No. 5,714,874, teaches a fuel cell voltage

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generator including a fuel cell, a d.c. converter, and a storage battery. Azuma et al., U.S. Pat. No. 5,631,532, teach a fuel cell/battery hybrid control system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela J. Martin whose telephone number is 571-272-1288. The examiner can normally be reached on Monday-Friday from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


AJM